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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,674	08/19/2003	Dong-ki Hong	1293.1800	3494

21171 7590 08/28/2007

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EXAMINER	
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ART UNIT	PAPER NUMBER
2627	

MAIL DATE	DELIVERY MODE
08/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/642,674	HONG ET AL.	
	Examiner	Art Unit	
	Kim-Kwok CHU	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on 6/26/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Remarks

1. Applicant's Remarks filed on June 26, 2007 have been fully considered but it is not persuasive.

With respect to the independent Claims 1, 7 and 16, Applicant states that the amended feature "the recording or reproducing sector of the disc is based on information on the position of a pickup based on the number of pulses for driving a motor for controlling movement of the pickup in the disc drive" is not taught in the prior art of Son (U.S. Patent 6,282,161). Accordingly, the prior art of Son's pickup 20 is driven by a motor means between an inner circumference to an outer circumference of the disk 11 (Figs. 2 and 5, column 3, lines 1-3, lines 9 and 10; steps S504 and S508). Although the drive power/pulses provided to the motor means is not mentioned, Son's pickup moving means is inherently driven by a plurality of digital pulses such as a series of tracking servo pulses. In other words, in order to record/reproduce a certain sector of Son's disk 11, the record/reproduce operation is based on several counts of the tracking servo pulses so that the pickup 20 is driven to a chosen sector (information on the position of a pickup) similar to Applicant's amended feature in Claims 1 and 7.

With respect to the independent Claims 3 and 5, the amended feature is taught in a newly found prior art of Akagi et al. (U.S. Patent 6,434,096).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless--*
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

3. Claims 1 and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Son et al. (U.S. Patent 6,282,161).

4. Son teaches a method of correcting a tilt in a disk drive having all of the steps as recited in claim 1. For example, Son teaches the following:

(a) with respect to Claim 1, detecting a tilt of a disc 11 loaded in the disc drive (Figs. 2 and 7, steps S710); searching a memory 38 in the disc drive for a tilt angle for a recording or reproducing sector of the disc in which the tilt is detected (Figs. 2 and 7, step S712; column 7, lines 22-26); calculating (by interpolation) a tilt angle for the recording or reproducing sector based on the detected tilt of the disc if no tilt angle is found in the memory 38 (Fig. 7, step S714; column 7, lines 31-33); correcting the tilt of the disc (Fig. 7, step S716); storing the calculated tilt angle in the memory so that the calculated tilt angle is used for the recording or reproducing sector (Fig. 7, step S712); if a tilt angle is found in the memory 38, the tilt of the disc is

corrected using the found tilt angle, and if the tilt angle is not found in the memory 38, the tilt of the disc is corrected using the calculated (interpolated) tilt angle (Fig. 7, steps S710-S716), the recording or reproducing sector of the disc 11 is based on information on the position of a pickup based on the number of pulses (a plurality of servo tracking digital signals/pulses) for driving a motor (pickup motor) for controlling movement (from inner circumference to outer circumference of disk 11) of the pickup in the disc drive (Figs. 2 and 5; optical pickup is moved by servo tracking pulses; steps S504 and S508).

5. Claim 16 has limitations similar to those treated in the above rejection, and is met by the reference as discussed above.

6. Claims 3-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Akagi et al. (U.S. Patent 6,434,096).

7. Akagi teaches a tilt correcting apparatus having all of the elements and means as recited in claims 3 and 4. For example, Akagi teaches the following:

(a) with respect to Claim 3, a pickup 4 that radiates light onto the disc 2 (Fig. 13); a tilt detector 44 that detects a tilt of the disc using the pickup (Fig. 13; column 31, lines 46-50); a motor 16 that drives the pickup 4 to correct the tilt of the disc 2; a memory 5, 6 that stores a tilt angle for each of the plurality of recording and reproducing sectors of the disc 2 (Figs. 15a and 15b; column 32, lines 1-21); a controller 24 that, if the tilt of the disc 2 is detected, searches the memory 5, 6 for the tilt angle for the recording or reproducing sector of the disc 2 wherein the pickup 4 is currently positioned (Figs. 13 and 14; steps S72; column 32, lines 40-44), and controls driving of the motor using the searched tilt angle (Fig. 14),
wherein the memory 5, 6 (Figs. 15a and 15b) stores a position information (offset, lens displacement and address) for each of the plurality of recording reproducing sectors of the disc expressed as a number of pulses necessary to drive a stepping motor of the disc drive (Fig. 13).

(b) with respect to Claim 4, if the tilt angle is not found in the memory, the controller 24 calculates the tilt angle for the recording or reproducing sector of the disc wherein the pickup is currently positioned based on the tilt of the disc (Fig. 13; tilt angle is calculated), corrects the tilt of the disc 2 using the calculated tilt angle, and stores the calculated tilt angle in the memory 5, 6, (Fig. 14; steps S72 and S80).

8. Claims 5 and 6 have limitations similar to those treated in the above rejection, and are met by the reference as discussed above. Claim 5 however also recites the following limitation which is also taught by the prior art of Son:

(a) as in claim 5, the pickup moves in a radial direction of the disc (Fig. 13; tracking is a radial direction movement).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

10. Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over by Son et al. (U.S. Patent 6,282,161) in view of Nishiwaki (U.S. Patent 6,704,254).

Son teaches a tilt correcting apparatus very similar to that of the present invention as recited in claim 7. For example, Son teaches the following:

(a) with respect to Claim 7, detecting a tilt of a disc 11 loaded in the disc drive (Figs. 2 and 7, steps S710); searching a memory 38 in the disc drive for a tilt angle for a recording or reproducing sector of the disc in which the tilt is detected (Figs. 2 and 7, step S712; column 7, lines 22-26); calculating (by interpolation) a tilt angle for the recording or reproducing sector based on the detected tilt of the disc if no tilt angle is found in the memory 38 (Fig. 7, step S714; column 7, lines 31-33); correcting the tilt of the disc (Fig. 7, step S716); storing the calculated tilt angle

in the memory so that the calculated tilt angle is used for the recording or reproducing sector (Fig. 7, step S712); if a tilt angle is found in the memory 38, the tilt of the disc is corrected using the found tilt angle, and if the tilt angle is not found in the memory 38, the tilt of the disc is corrected using the calculated (interpolated) tilt angle (Fig. 7, steps S710-S716), the recording or reproducing sector of the disc 11 is based on information on the position of a pickup based on the number of pulses (a plurality of servo tracking digital signals/pulses) for driving a motor (pickup motor) for controlling movement (from inner circumference to outer circumference of disk 11) of the pickup in the disc drive (Figs. 2 and 5; optical pickup is moved by servo tracking pulses; steps S504 and S508).

However, Son does not teach the following:

(a) with respect to Claim 7, tilt correcting method is implemented by a computer readable encoded with processing instructions (program).

Nishiwaki teaches an optical disk control method where its tilt adjustment is controlled by a program stored in a recording medium (column 17, claim 14).

In order to access compensated values in a tilt correcting operation, a software servo program is more flexible than a hardware device such as a digital signal processing unit. Therefore, when there is a disc servo

control where variables such as tilt correcting values needed to be stored, it would have been obvious to one of ordinary skill in the art to implement the tilt servo method such as Son's in form of Nisiwaki's software executable instructions and stored it in Nishiwaki's computer readable recording medium instead of electronic circuits, because the software design cost less and its instructions/steps can be updated or modified.

12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington, can be reached on (571) 272-4483.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

Kim-Kwok CHU
Examiner AU2627
August 20, 2007
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ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER